

ART. XV.—*Contributions to the Flora of Australia, No. 27.*

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(With Plate XVIII.)

[Read 7th November, 1918].

In connection with the work of the Plant Names Committee, and also owing to the issue of Mr. Maiden's "Census of New South Wales Plants," it has been necessary to investigate the scientific names in use for a number of Victorian Plants. In most cases it was a question of which of two names had priority, but in a few cases doubt had arisen as to whether a plant recorded as Victorian was really a native of Victoria or not. The decision arrived at is given in the following pages, with a reference to the evidence where it seemed necessary to give it.

In addition at the end of the present paper some observations on the growth in girth of the Elm are recorded.

ACACIA BUXIFOLIA, A. Cunn. (*A. lunata*, Sieb.). (Leguminosae).  
"Box Leaf Acacia."

ACACIA LINIFOLIA, Willd. "Flax Acacia."

The question has been raised as to whether this plant is really a native of Victoria. The Herbarium contains specimen collected in Gippsland, Victoria, by Mr. Howitt in 1884.

ACACIA LONGIFOLIA, Willd. "Sallow Acacia."

The following plants formerly classed as varieties, namely, *Acacia murconata*, Wild., *A. Sophorae*, R.Br., and *A. floribunda*, Sieb., have been again raised by Mr. Maiden to specific rank. The matter is rather one of convenience and personal judgment than of scientific investigation, and hence for uniformity these plants may be recognised as three additional species to the list of Victorian Acacias.

ACACIA SALICINA, Lindl., var. *VARIANS*. "Willow Acacia."

Black states that this variety should be found near the Murray. So far no Victorian specimens of it have been found.

*ACACIA SUBTILINERVIS*, F. v. M. (Leguminosae). "Eastern Acacia."

This plant was recorded as Victorian by Baron von Mueller. The nearest locality is from Mt. Inley, N.S. Wales. It must therefore be deleted from the Victorian Flora.

*ALHAGI CAMELORUM*, Fisch. (Leguminosae). "Camel Thorn."

Rutherglen, G. H. Adcock, F.L.S., 10/1/1918. A native of Central Asia and the Orient.

This is the first record of this plant as growing wild in Victoria. The plant grows luxuriantly near the Murdering Hut Creek, and on the spoil of a dam near McInerney's, about three miles away. It first appeared about two or three years ago, and was then cut down.

*ALYSICARPUS VAGINALIS*, D.C. (*Fabricia nummulariaefolia*, Ktz.). (Leguminosae).

Darwin, Dr. Gilruth, 1918.

This plant was recorded from North Australia, generally without any previous record attaching it to a definite locality in the Northern Territory. It appears to be common, and Dr. Gilruth informs me that it is a valuable fodder plant, carrying particularly in the wet season more stock than anything else. All stock are extremely fond of it, especially in the pre-flowering stage, but even when ripe and the stem somewhat woody it is eaten with avidity.

*A. vaginalis* is a polymorphic species common in the old world Tropics, and it has also become naturalized in America, but little or no attention appears to have been paid to its economic possibilities as a pasture plant for warm climates.

*ALYSSUM LINIFOLIUM*, Stevens (*A. minimum*, Pallas). (Cruciferae). "Desert Alyssum."

*APHANOPETALUM*. This genus is transferred from the Saxifragaceae to the Cunoniaceae.

*BORONIA INORNATA*, Turcz., Bull. Soc. Nat. Mos., xxv., 1852, 11, 164, replaces *BORONIA CLAVELLIFOLIUM*, F. v. M., Trans. Phil. Soc. Vict., 1, 1855, p. 12.

*BRAZENIA SCHREBERI*, Gmel. (Nymphaeaceae). "Water Shield."

Syst. 853 (*B. purpurea*, Casp. Journ. Sc. Acad. List IV., 1873-4.)

*CALLISTEMON LINEARIS*, D.C. (Myrtaceae).

As no Victorian specimens of this species are known it must be deleted from the Victorian Flora.

*CALLISTEMON RUGULOSUS*, D.C. (1829). (Myrtaceae).

This name replaces that of *C. coccineus*, F. v. M., 1859.

*CALLISTEMON SIEBERI*, D.C. (1828).

The question has arisen as to whether *C. pithyoides*, Miquel, is not a form of the same species. The two plants have, however, a very different external "facies," and the latter has hairs on the stem and young leaves, more scattered fruits, narrower leaves with a different internal structure. Hence both species must stand.

*CALOCHILUS HOLTZEI*, F. v. M. (Orchidaceae).

Near Darwin, Nth. Australia, M. Holtze. 1892.

This plant is recorded in the Victorian Naturalist, March, 1892, and was inadvertently omitted from the Flora of the Northern Territory.

*CALTHA INTROLOBA*, F. v. M., and *CALTHA NOVAE ZEALANDIAE*,  
Hook. (Ranunculaceae).

Mueller apparently included under the former species the latter one also. Both names stand as valid species. *C. introloba* has white flowers which are larger than the yellow flowers of *C. Novae Zeelandicae*. Hill (Annals of Botany, 1918, p. 421) distinguishes the former species by the leaf appendages being folded at an angle of 45°C to the petiole, and in the latter being folded at right angles to the petiole.

*CAPPARIS MITCHELLII*, Lind. (Capparideae). "Desert Caper."

This name has been variously spelt with one or two terminal i's. In the original description in Mitchell's Expedition it is spelt as above.

## CARDAMINE TENUIFOLIA, Hook. (Cruciferae).

Journal of Botany, I., 1834, 247.

This is given as a variety of *C. hirsuta*, L., by F. v. Mueller, Census I., 1882. It appears to be a valid species.

## CASSYTHA MELANTHA, R. Br. (Lauraceae). "Large Dodder Laurel"

Prolonged search during more than one season failed to discover any plants of this parasite or of *C. glabella* showing any rooted attachment to the ground. Mr. Semmens, Forester at Bendigo, also informs me that he has never been able to find a seedling of *Cassythia* attached to the ground. The possibility, therefore, existed that these species were like *Cuscuta*, the ordinary Dodder, rootless, and developed directly on the host plant. The fruits of *C. melantha* are large, and with a very viscid pulp which sticks readily to the stems of the host plants. The thin walled pulp cells contain numerous granules of a viscid material which later, as the pulp cells break down, give them their sticky nature.

A quantity of ripe fruits of *C. melantha* were collected in autumn in order to germinate them. They were planted with and without the pulp on the surface and at varying depths. None germinated. The outer coat is very hard, and it was found that to produce germination it was necessary to file the seed coats. Such seeds germinated in spring (September to October), and their development was traced up to the point of attachment of the host plant.

The radicle escapes first, at once bends downwards and forms a few simple roots. (Pl. XVIII., Figs. a, b, c.) The other end of the rod-like embryo remains in the seed, absorbing food materials from the endosperm, and growth in length takes place from the tip embedded in the seed to form a strongly arched stem, thick at the base and tapering towards the apex. If the seed is deeply buried it does not appear above the surface; but if near the surface it is raised upwards by the straightening of the bent portion, and not by the elongation of the straight basal portion. When the endosperm has been absorbed, the absorbent apex of the stem shakes off the seeds and escapes, the last scale leaves being developed while still in the seed. (Pl. XVIII., Fig. j.). No cotyledons are developed. The first scale leaf is from 2 to 3½ inches from the base of the stem. If the stem is cut above it, a lateral shoot



develops in the axil of the scale leaf (Fig. m). If the stem is killed from a point below the first scale leaf, the basal part remains living for weeks, increases in diameter, but ultimately the roots die and the thick basal green shoot follows suit. (Fig. h). In one such case after persisting for three months a crop of witches' broom-like outgrowths formed at the apex, one of which developed into a slender twining shoot. (Fig. n). The seedlings of *C. melantha* therefore resemble those of *Cuscuta* in having no cotyledons, but differ in having an early rooted stage. After a good parasitic attachment has been formed the basal part shrivels and dies. In one respect the germination is quite peculiar, namely, in the fact that the *apex of the stem* is the absorbing organ, and remains in the seed until all the food material has been absorbed, usually developing scale leaves in the seed before it is finally withdrawn. In this respect the germination of *Cassytha melantha* is unique, and it would be of interest to know whether all the species of *Cassytha* behave similarly, and also whether they are all devoid of cotyledons.

CASUARINA STRICTA, Ait., replaces CASUARINA QUADRIVALVIS, Labill. (1806). (Casuarineae).

It is to be regretted that the well-known name of *C. quadrivalvis* must go, but there seems to be no other course possible. The same change has been made by Mr. Maiden. (Fl. N.S. Wales, II., 142.)

COPROSMA REPENS, Hook. f. (Rubiaceae).

The question of the relationship of this plant to *Coprosma pumila*, Hook. f., has been raised. Both names really refer to the same plant. The former name was first given in Hooker's *Flora Antarctica*, I., 22, p. 16. In the appendix (*Flora Antarctica*, II., 542), the name of *C. pumila* is given but really refers to the same plant, hence the former name stands. In Hooker's *Flora of New Zealand*, *C. pumila* is quoted from Hook, *Flora Antarctica*, I., p. 22, and *C. repens* from I., p. 23; but the quotations are incorrect. *C. repens* is on p. 22, and *C. pumila* is only mentioned in the appendix.

DIDISCUS PILOSUS, Sm., replaces DIDISCUS PUSILLUS, F. v. M., and DIDISCUS BENTHAMII, Domin., replaces D. PILOSUS, Benth.

DIDYMOTHECA PLEIOCOCCA, F. v. M. (Phytolaccaceae), now becomes GYROSTEMON CYCLOTHECA, R. Br.

*DODONAEA VISCOSA*, L. (Sapindaceae). "Giant Hop-Bush."

The question has arisen as to whether the variety *spathulata* of this species is not sufficiently distinct to be recognized as a distinct species. If so, at least four other varieties, namely, *angustifolia*, *asplenifolia*, *attenuata*, and *cuneata* would need corresponding specific recognition. Although the extreme forms look very distinct, all grades of transition occur between these varieties, and it is evident that we are dealing with a plant in which the segregation of a plant into a well marked species adapted to different habitats is taking place, but is not yet completed. In a century or two botanists may be justified in recognizing all five species.

## DYSPHANIA.

This genus has been transferred from the Chenopodiaceae to the Caryophyllaceae, with which it appears to have a closer affinity.

*ELEUSINE INDICA*, Gaertn. (Gramineae). "Indian Eleusine"

*Matarauca*, VII., Dr. J. A. Gilruth. 1918. "Like *Paspalum*, eaten very readily by stock."

This grass is native to New South Wales and Queensland, but is a new record for the Northern Territory. Like immature *Sorghum* it contains a cyanogenetic glucoside yielding hydrocyanic acid, when macerated in water or eaten by stock, and hence capable of poisoning or injuring the latter when eaten in quantity.

*ERIOSTEMON AMPLIFOLIUS*, F. v. M. (*Phebalium amplifolium*),  
nomen nudum.

This plant was described by Baron von Mueller in 1884, in the Melbourne Chemist and Druggist, Dec., 1884, as follows:—

"Collected by C. M. Walter."

"*Eriostemon amplifolius*, F. v. M. It has very large, flat, broadly ovate or somewhat rhomboid leaves of rather thick texture and of slightly purplish hue, more frequent in the genus *Boronia* than in *Eriostemon*. Neither flowers or fruit were found." No locality is given, but the previous species described, *Eriostemon Coxii*, is from the Murrumbidgee, N.S. Wales. There are no specimens of *E. amplifolium* in the National Herbarium, and no trace of this species can be found. The description is so

incomplete that even if the species actually exists and were refound it would be impossible to identify it with certainty with the above named, which must therefore be regarded as a permanent nomen nudum and deleted from the list of Australian Plants.

*EUCALYPTUS CORIACEA*, A. Cunn., replaces *E. PAUCIFLORA*, Sieb., see Maiden's Fl. of N.S.W., vol. ii., 117.

*EUCALYPTUS DIVERSIFOLIA*, Bonpl., replaces *E. SANTALIFOLIA*, F.v. M.

*EUCALYPTUS FRUTICETORUM*, F. v. M., replaces *E. POLYBRACTEA*, R.T.B., see Maiden's Fl. of N.S.W., v., 27.

*EUCALYPTUS RADIATA*, Sieb. (*E. AMYGDALINA*, var. *RADIATA*).

This variety was at one time raised to specific rank as *E. numerosa*, Maiden, but Mr. Maiden now suppresses his own name in favour of the above. (See Maiden's Fl. of New South Wales, II., p. 147.)

#### *EUCRYPHIA*.

This genus is transferred from the Saxifragaceae to the Eucryphiaceae, but the genus *Bauera* remains in the Saxifragaceae.

*GAILLARDIA PULCHELLA*, Fougér. (Compositae). "Painted Gaillardia."

Mildura, C. French, junr., November, 1917.

A native of North America, apparently an escape from cultivation, and appearing in hundreds in the Mildura district.

*GYROSTEMON COTINIFOLIUS*, Desf., stands in place of *CODONOCARPUS COTINIFOLIUS*, F. v. M.

*HEDYCARIA CUNNINGHAMI*, Tul. (1855) is replaced by *H. ANGUSTIFOLIA*, Cunn. (1838), which is the older name. The former name was adopted by F. v. Mueller, and has been locally used; the latter name was used by Bentham.

*IXIA LUTEA*, Baker. (Irideae). "Yellow Corn Lily."

Avoca, Vic., per J. Callander. October, 1917.

A garden escape, spreading in the Avoca district.



*KOELERIA PHLEOIDES*, var. *AZORENSIS*, Domin. (Gramineae).

St. Eloy D'Alton, Dimboola, 1917.

A depauperate specimen of a variety recently described, not previously recorded from Victoria, and probably introduced. The variety differs from the type in having hairy glumes, and being more stunted in all respects. The grass was identified by Professor Hitchcock, Agrostologist to the United States of America.

*LEPIDIUM ROTUNDUM*, D.C. (Cruciferae). "Veined Pepperwort"

(*Lepidium phlebopetalum*, F. v. M.).

*LORANTHUS MIRACULOSUS*, Miq. (Loranthaceae).

Bentham gives this as *L. pendulus*, var. *parviflora*, but Mr. Maiden, in the Census of New South Wales Plants, 1916, raises it to specific rank. Although the differences from *L. pendulus* are not very great (smaller leaves and flowers and the latter often 4-partite, etc.), the plant seems to form a constant and well marked type, with a facies distinct from *L. pendulus*. Miquel, in *Plantae Preissianae*, I., p. 281, 1844-5, quotes a species, No. 6, under a manuscript name of Lehmann's, as *L. Melaleucae*, which is the same as the following species, No. 7, *L. miraculosus*, and strict priority rule requires that the earlier name should stand. Lehmann, as editor of the work, presumably consented to the publication of the M.S. name, but as the whole article on Loranthaceae is by Miquel, it would seem to be more appropriate to retain his own name for the species, namely, *L. miraculosus*.

*MARTYNIA FRAGRANS*, Lindl. (Pedalineae). "Fragrant Martynia."

Yalca, J. McKenzie, Esq., April, 1918. Probably a garden escape. This is its first appearance in Victoria as growing wild.

*MYRIOPHYLLUM PROPINQUUM*, A. Cunn. (1839), is replaced by *MYRIOPHYLLUM INTERMEDIUM*, D.C. (1828), the older name.

*OLEARIA GLUTINOSA*, Benth. (Compositae). "Swamp Aster."

The question has been raised as to whether the varieties *glutescens* and *oraria*, which were raised to specific rank by F. v.



Mueller are not really distinct species. It seems, however, to be impossible to form any satisfactory line of demarcation between these varieties and *O. glutinosa*.

*PIMELEA PUNICEA*, R.Br., var. *BREVILOBA*. (Thymelacaceae).

"Purple-weed."

Daly River Farm, J. R. Coney, Esq., Manager, per Dr. Gilruth.

This plant is said to be poisonous to stock, which will only eat it when cut up with other herbage. The plant is recorded in the *Flora of the Northern Territory*, pp. 197, 285 as being poisonous, but as in the case of some other species suspected of poisonous properties, the poisonous principle has not been extracted and determined, and the nature of the poisonous action is uncertain. As all *Pimeleas* contain strong, tough fibre, the possibility of a mechanical action must always be taken into consideration.

*SELAGO CORYMBOSA*, L. (Scrophulariaceae). "Selage or Waterfinder."

Bairnsdale, Vic., per G. Renner, Esq., March, 1918.

This plant has not been previously collected in Victoria. It is a native of South Africa.

*SPYRIDIUM ERIOCEPHALUM*, Fenzl., and *S. VEXILLIFERUM*, Reissk.

A question of the synonymy of these two species arose, but on investigation both appeared to be distinct.

*THRYPTOMENE ERICAEA*, F. v. M. (Myrtaceae).

This plant appears to be confined to South Australia, and hence must be deleted from the Victorian Flora.

## TRIGLOCHIN.

Ostenfeld, in *Dansk Botanisk Arkiv*, 1918, 30, gives a revision of the annual species of *Triglochin* and recognizes the following:—

*Triglochin calcitrapa*, Hook. Vic., T., S.A., W.A., N.S.W., Q.

„ *Stowardi*, N. E. Brown. W.A.

„ *turrifera*, Ewart. Vic.

„ *centrocarpa*, Hook. All six States.

„ *minutissima*, F. v. M. V., S.A., W.A.

„ *tricophora*, Nees. W.A.

„ *Muelleri*, Buchenau. W.A.

Ostenfeld also gives a key to the annual species. Including the perennial species, the following would be the key as modified to include all the Australian species of *Triglochin* at present recognized.

#### ANNUALS.

##### I.—Fruits of three nutlets falling from a central axis.

A. Carpels with free apex, the three fertile ones with a reflexed apical mucro; fruit turbinate - - - *T. mucronata*

B. Carpels united up to apex, no apical mucro, fruit linear or pyramidal to ovoid.

(a) Carpels with well developed, mostly incurved basal spurs; fruit linear-pyramidal or pyramidal.

(b) Fruit linear-pyramidal, evenly tapering from base towards apex; basal spurs incurved.

1. Fruit 7 mm. long, with rather large basal spurs - - - - - *T. calcitrapa*

2. Fruit about 15 mm. long, basal spurs comparatively small - - - - - *T. Stowardii*

Fruit pyramidal with conical apex, 3.5–4 mm. long; basal spurs not incurved - - - - - *T. turriferu*

(B) Carpels with very short or hardly any basal spurs; fruit linear to elliptic or ovoid.

(a) Fruit linear or linear-pyramidal.

1. Fruit mostly linear-pyramidal, 2.4 (rarely 5.5) mm. long; carpels with slightly dilated base and very short, but mostly distinct basal spurs - - - - - *T. centrocarpa*

2. Fruit linear, 1-1.5 mm. long; carpels with hardly any dilation at the base and no spurs *T. minutissima*

Fruit oblong to elliptic or ovoid.

1. Fruit oblong-ovoid, 2-2.5 mm. long, tapering into a conical apex very short, but distinct basal spurs - - - - - *T. trichophora*

2. Fruit elliptic, about 2 mm. long, without any distinct apical part; no basal spurs - *F. Muellieri*

#### PERENNIALS.

Plants 2 inches to a foot in height - - - - - *T. striata*

##### II.—Fruit of 3 to 6 nutlets not leaving a central axis or sterile partitions.

1. Flowers nearly sessile, carpels usually six - *T. procera*

2. Flowers sessile, carpels usually two or three *T. Maundii*

WITHANIA SOMNIFERA, Dun. (Solanaceae). "Narcotic Winter Cherry."

Black Rock, Burnley, Elsternwick, and Domain (South Yarra).  
J. W. Audas, 15/5/1918.

This introduced plant is already widely spread and has now sufficiently established itself to be considered a naturalized alien. Its creeping roots are difficult to eradicate, and it has slight poisonous properties, which would tend to cause abortion. It is native to the Mediterranean Regions and Africa.

ULMUS CAMPESTRIS, L. "Common Elm."

*(Rate of Growth).*

The growth in circumference of a fine tree standing in the Herbarium grounds was followed over a year. A smooth surface was prepared on a horizontal line, 5 ft. 6 in. from the ground, and the measurement taken with a tape. The circumference was 6 ft. 10 in., and no growth was shown from July until the end of October. Growth began in November, but even at the middle of December the increase barely exceeded a quarter of an inch. The main growth took place from the middle of December to the end of February, and amounted to  $1\frac{1}{4}$  inches. The circumference was then 6 ft. 11.5 in. It remained stationary until March, but at the beginning of April had decreased by 0.2 of an inch, and at the end of April by 0.3 inch. Probably this contraction is due to the cambium layers being no longer so highly distended as when actually growing. From April to June the circumference remained constant at 6 ft. 11.2 in.<sup>1</sup>

A boring taken of the tree from which sections were made showed that the cambial growth began nearly a month before any apparent increase in external girth was shown. Evidently the bark only begins to expand externally when the internal growing tissues have produced a sufficient internal pressure upon it, and the increasing pressure at first pushes the bark obliquely into cracks or spaces previously developed. It is only when a certain amount of cambial growth has taken place that the outermost portions of an irregular scaly layer of bark move outward as a whole, increasing the external diameter of the tree.

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<sup>1</sup> The measurements were made by a tape under constant tension checked against a wooden scale.



## EXPLANATION OF PLATE XVIII.

## CASSYTHA MELANTHA.

- a, b, c, d, e, f, stages in germination.
  - g, plant forming first parasitic attachment.
  - h, plant with apex killed from beneath first scale leaf.
  - i, apex of stem absorbing endosperm.
  - j, apex of stem about to escape from seed.
  - k and l, first and second scale leaves.
  - m, shoot developing in first scale leaf after removal of apex of stem.
  - n, decapitated stem, forming new shoots.
-